

PHNL030291

PCT/IB2004/050304

10

CLAIMS:

1. A radiation source driving device (2) for controlling a voltage fed to a radiation source (3) in an information reproducing system for reproducing information on an information carrier (1), comprising

5 a radiation source controller (21) for controlling the voltage fed to the radiation source (3), and

a power supply (22) for providing a working voltage (V_w) to the radiation source controller (21),

10 characterized in that the power supply (22) comprises a control input (I_c) for controlling the working voltage (V_w) to the radiation source controller (21) and in that the radiation source driving device (2) further comprises power supply control means (23) for generating a control signal (S_c) which is fed to the control input (I_c) of the power supply (22) wherein the control signal (S_c) is dependent on the voltage fed to the radiation source (3).

2. A radiation source driving device (2) as claimed in claim 1, characterized in that a first value of the control signal (S_c) indicates that the radiation source (3) is turned off and a second value of the control signal (S_c) indicates that the radiation (3) source is turned on, and in that the power supply (22) outputs a first working voltage when the control signal (S_c) has the first value and the power supply (22) outputs a second working voltage higher than the first working voltage when the control signal (S_c) has the second value.

20

3. A radiation source driving device (2) as claimed in claim 1, characterized in that a first value of the control signal (S_c) indicates that the radiation source driving device (2) reproduces information from the information carrier (1) and a second value of the control signal indicates that the radiation source driving device (2) writes information to the information carrier (1), and wherein the power supply (22) outputs a first working voltage when the control signal (S_c) has the first value and the power supply (22) outputs a second working voltage higher than the first working voltage when the control signal (S_c) has the second value.

PHNL030291

PCT/IB2004/050304

11

4. A radiation source driving device (2) as claimed in claim 1, characterized in that the control signal (Sc) is dependent on the relative speed of the information carrier (1) with respect to the radiation source (3) and wherein the working voltage (Vw) generated by the power supply (22) is a function of the relative speed.

5

5. A radiation source driving device (2) as claimed in claim 1, characterized in that the control signal (Sc) is dependent on a type of information carrier (1) to be read or written and wherein the working voltage (Vw) generated by the power supply (22) is a function of the type of information carrier (1).

10

6. A radiation source driving device (2) as claimed in claim 1, characterized in that the control signal (Sc) is a function of two or more parameters such as relative speed, type of information carrier (1) or whether the radiation source driving device (2) reads information from or writes information to the information carrier (1).

15

7. A radiation source driving device (2) as claimed in claim 1, further characterized by measurement means (25) for measuring a variable which is indicative of the voltage fed to the radiation source (3) and in that the measured variable is fed to the power supply control means (23), wherein the power supply control means (23) are able to generate the control signal (Sc) as a function of the measured variable.

8. A radiation source driving device (2) as claimed in claim 7, characterized in that the measured variable is a measure for the peak voltage over the radiation source (3).

25

9. A radiation source driving device (2) as claimed in claim 7, characterized in that the measured variable is a current fed to the radiation source (3).

30

10. A radiation source driving device (2) as claimed in claim 7, characterized in that the power supply control means (23) are arranged to regulate the working voltage (Vw) to a level equal to a sum of a basic working voltage and a delta working voltage, wherein the basic working voltage is a minimal working voltage at which the radiation source controller (21) is able to feed a required steady state voltage to the radiation source (3).

PHNL030291

PCT/IB2004/050304

12

11. A radiation source driving device (2) as claimed in claim 10, characterized in that the radiation source controller (21) comprises a field emitting transistor for supplying the voltage fed to the radiation source (3), the field emitting transistor having a drain-source voltage (V_{ds}), wherein the basic working voltage comprises the sum of the drain-source voltage (V_{ds}) when the field emitting transistor becomes saturated and the required steady state voltage.
12. Method for driving a radiation source (3) in an information reproducing system for reproducing information on an information carrier (1), comprising the steps of controlling a voltage fed to the radiation source (3) by a radiation source controller (21); generating a working voltage (V_w) which is fed to the radiation source controller (21), characterized in that in further comprising a step of generating a control signal (S_c) which controls the working voltage (V_w) wherein the control signal (S_c) is dependent on the voltage fed to the radiation source (3).
13. Method as claimed in claim 12, characterized in that a first value of the control signal (S_c) indicates that the radiation source (3) is turned off and a second value of the control signal (S_c) indicates that the radiation source (3) is turned on, and in that the working voltage (V_w) equals a first voltage when the control signal (S_c) has the first value and the working voltage (V_w) equals a second voltage higher than the first voltage when the control signal (S_c) has the second value.
14. Method as claimed in claim 12, characterized in that a first value of the control signal (S_c) indicates that the information reproducing device reproduces information from the information carrier (1) and a second value of the control signal (S_c) indicates that the information reproducing system writes information to the information carrier (1), and in that the working voltage (V_w) equals a first voltage when the control signal (S_c) has the first value and the working voltage (V_w) equals a second voltage higher than the first voltage when the control signal (S_c) has the second value.

PHNL030291

PCT/IB2004/050304

13

15. Method as claimed in claim 12, characterized in that the control signal (Sc) is dependent on the relative speed of the information carrier (1) with respect to the radiation source (3).

5 16. Method as claimed in claim 12, characterized in that the control signal (Sc) is dependent on a type of information carrier (1) to be read or written.

10 17. Method as claimed in claim 12, characterized in that the control signal (Sc) is a function of two or more parameters such as relative speed, type of information carrier (1) or whether the information reproducing system reads information from or writes information to the information carrier (1).

15 18. Method as claimed in claim 12, characterized in that the method further comprises a step of measuring a variable which is indicative of the voltage fed to the radiation source (3) and wherein the step of generating the control signal (Sc) generates the control signal (Sc) as a function of the measured variable.

19. Method as claimed in claim 18, characterized in that the measured variable is a measure for the peak voltage over the radiation source (3).

20 20. Method as claimed in claim 18, characterized in that the measured variable is a current to the radiation source (3).

25 21. A device for recording and/or playback of information on an information carrier (1), the device including
a radiation source driving device (2) as claimed in any of the claims 1 to 11;
a radiation source (3) for irradiating a radiation beam (b) on the information carrier, wherein the power to the radiation source (3) is controllable by the radiation source driving device (21);

30 mapping means (4) for mapping the radiation beam at a spot at the information carrier (1);

displacement means (6) for causing a relative displacement between the spot and the information carrier (1), and

PHNL030291

PCT/IB2004/050304

14

transforming means (5) for transforming a reflected radiation beam into an information signal (Si).